

ABSTRACT

An obstacle detection system using stereo cameras mounted on a vehicle, to detect an obstacle existing on a ground plane at a high speed and in a high precision even with the stereo cameras being uncalibrated and with a vibration during a traveling and a change in the inclination of the ground plane. The obstacle detection system comprises: a plurality of uncalibrated TV cameras for inputting stereo images; an image storage unit 2 for storing a plurality of images inputted from the TV cameras; a feature extraction unit 3 for extracting a plurality of mutually parallel lines existing on the ground plane; a parameter computation unit 4 for determining a relation to hold between the projected positions of an arbitrary point of the ground plane upon the individual images, from the plurality of lines extracted by the feature extraction unit 3; and a detection unit 5 for detecting an object having a height from the ground plane, by using the relation determined by the parameter computation unit 4.